



# **Armed Forces College of Medicine AFCM**



# **Brainstem II**

## **Pons**

**Prof. Dr. Shahera  
Yussef**

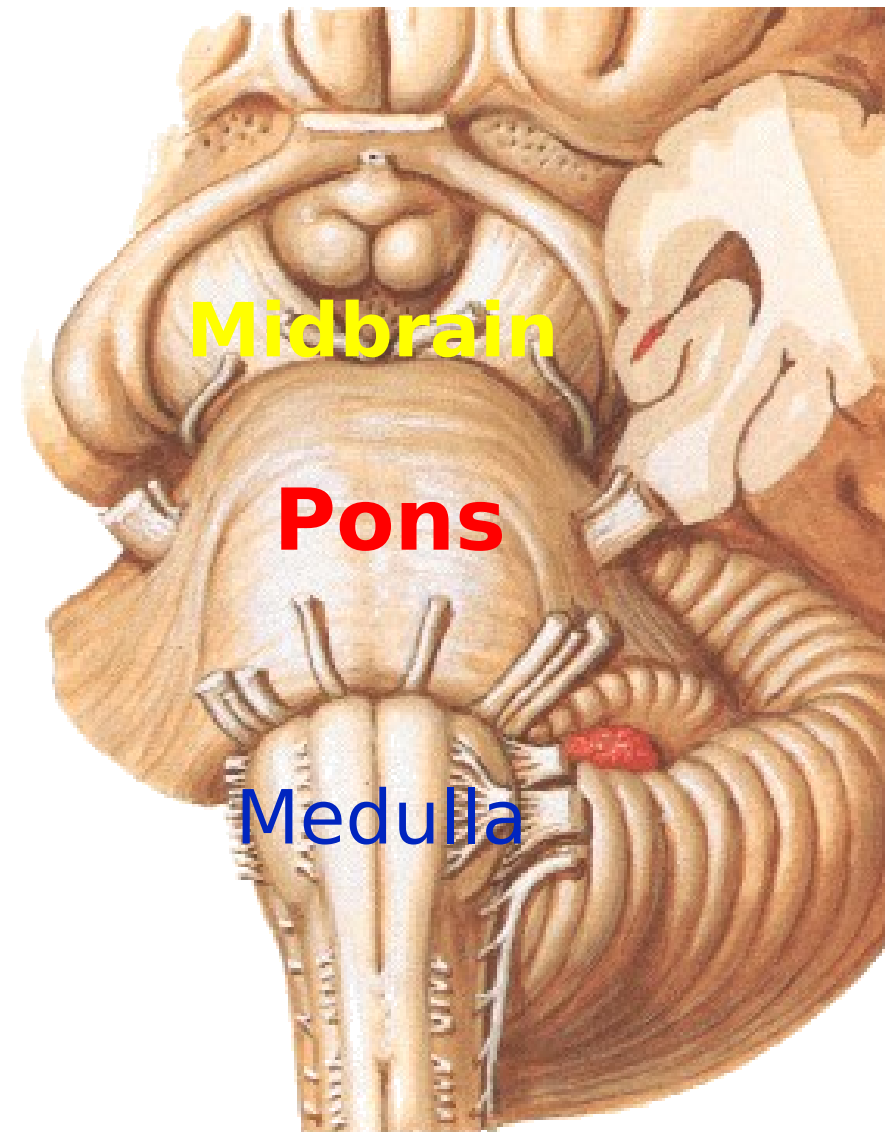
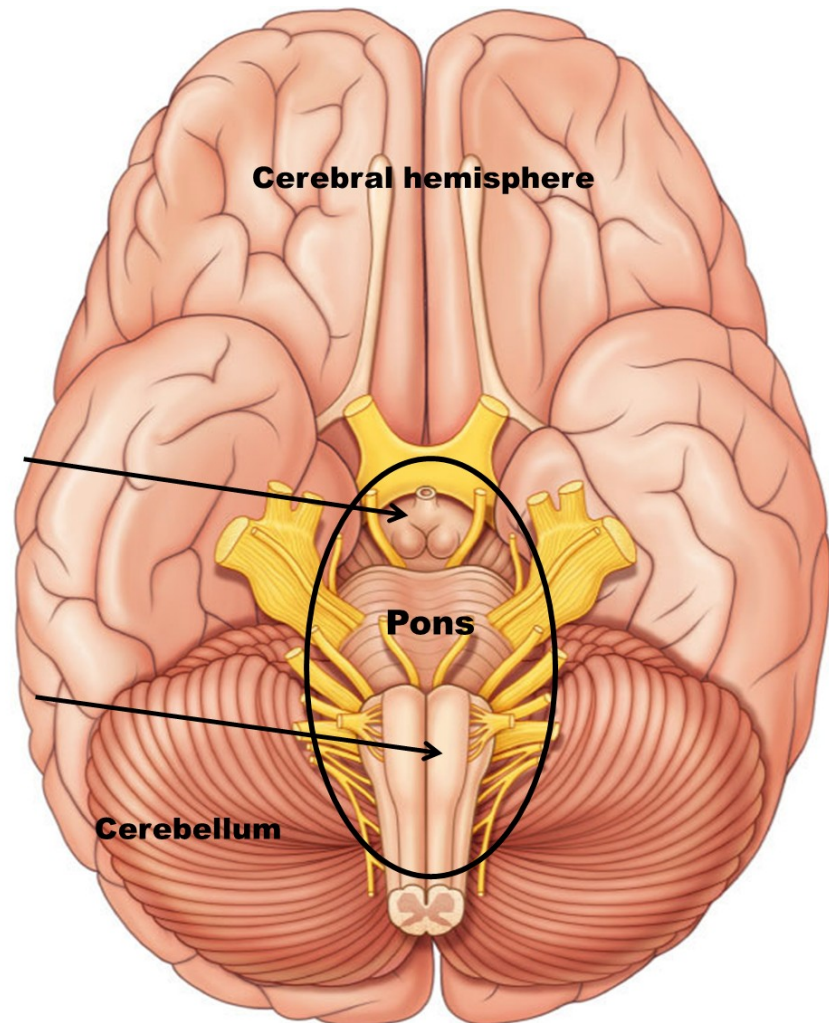
**Ass. Prof. Asmaa Abd  
Elmonem**

## INTENDED LEARNING OBJECTIVES (ILO)



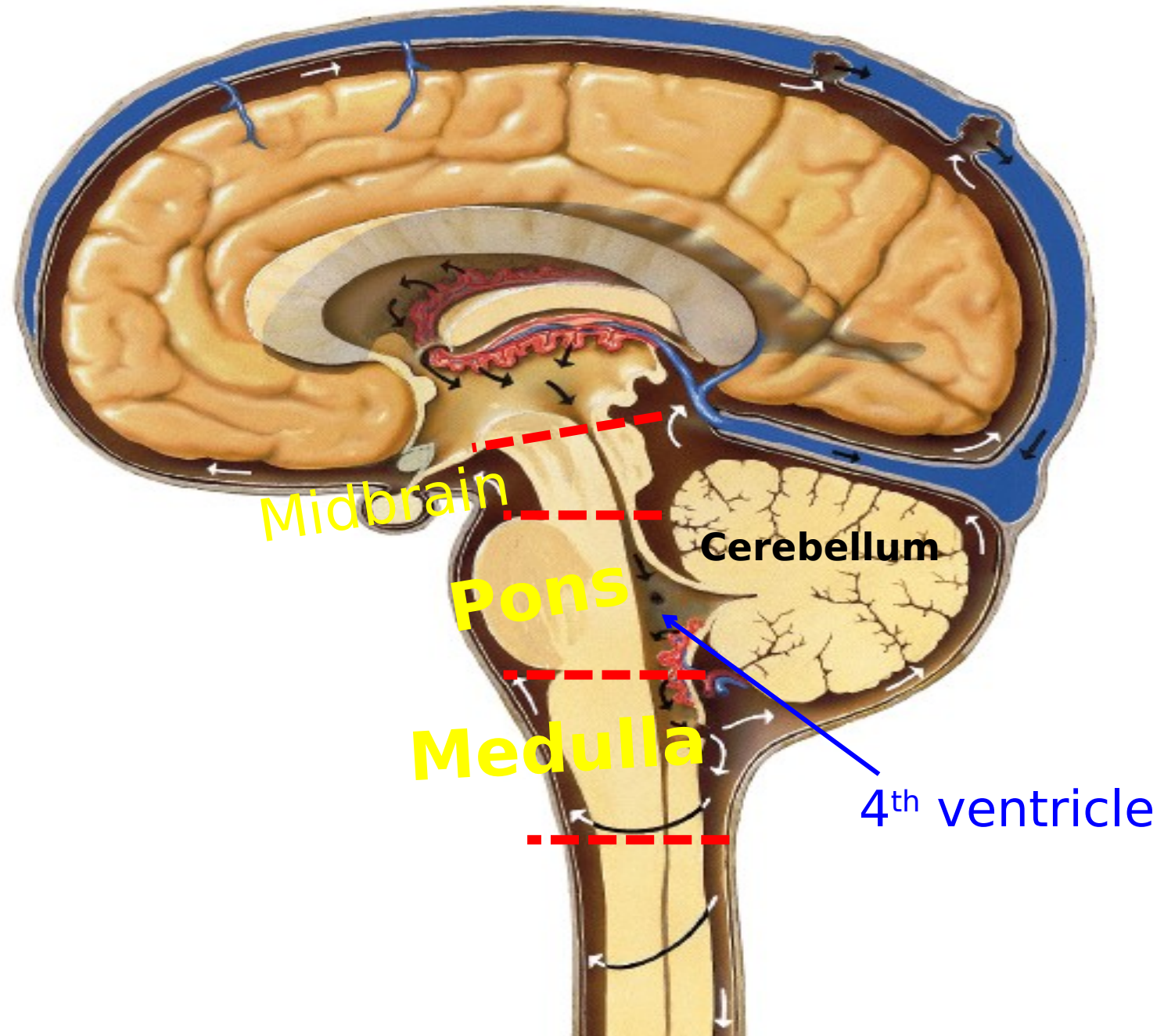
By the end of this lecture the student will be able to:

- 1. Describe gross morphology of ventral and dorsal aspects of Pons**
- 2. Describe the internal structure and correlated functions of different levels of pons.**
- 3. Describe superficial attachments of**



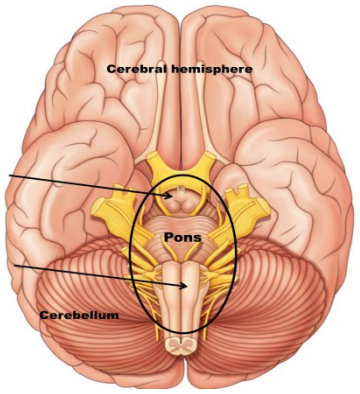
# Pons

**EXTENSION:**  
from the upper  
border of the  
medulla  
oblongata  
(below) to the  
lower border of  
the midbrain  
(above) the 4<sup>th</sup>  
ventricle





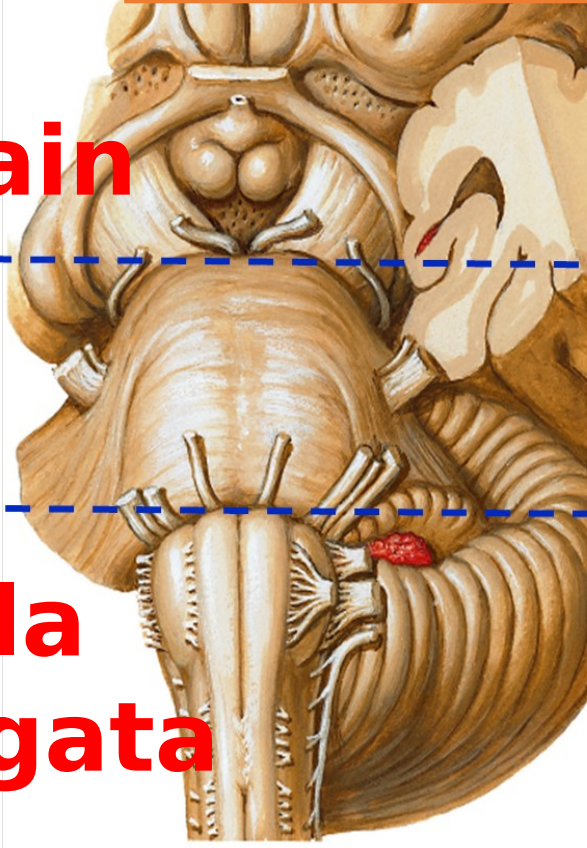
# SURFACES OF BRAIN STEM



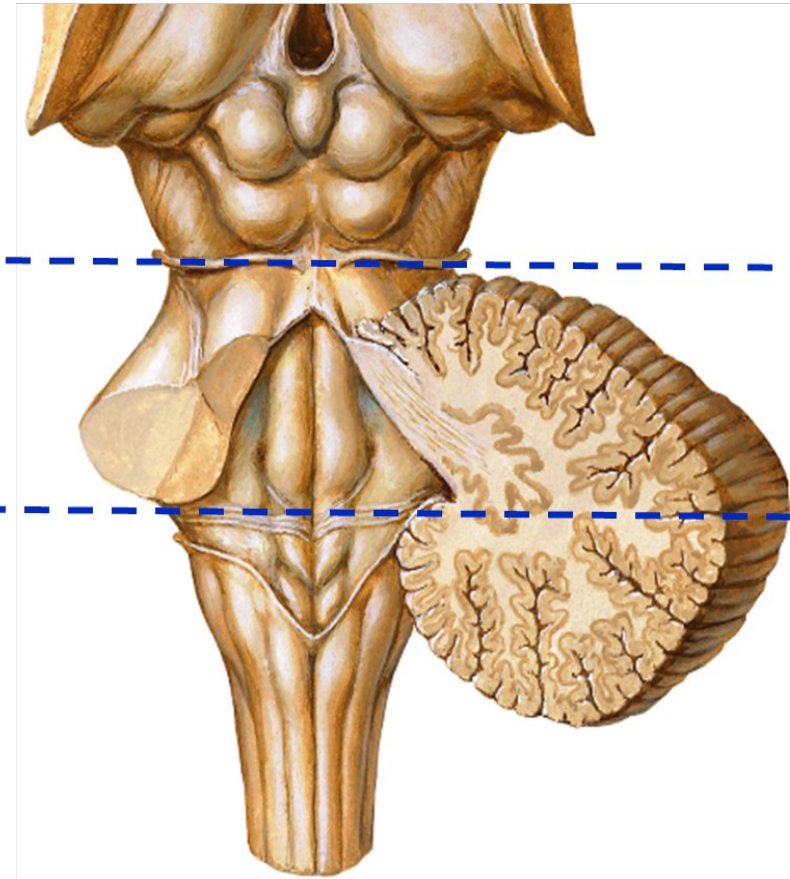
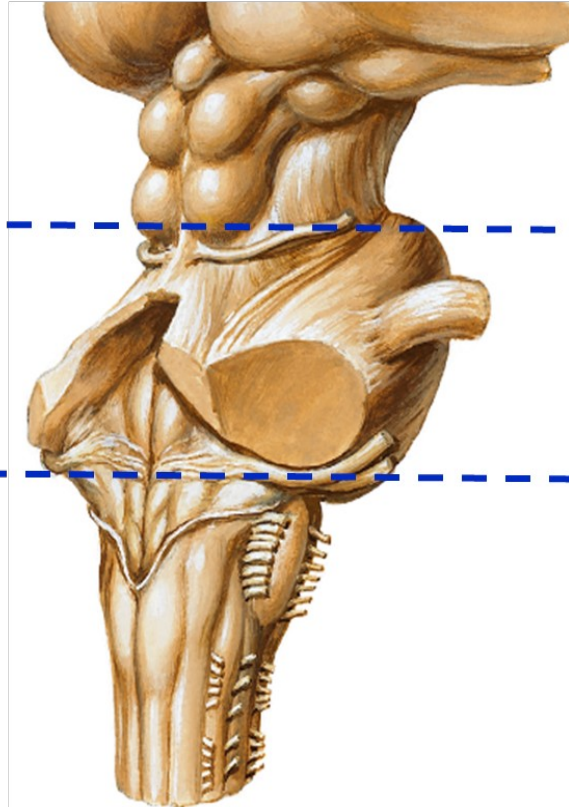
- **Midbrain**

- **Pons**

- **Medulla Oblongata**



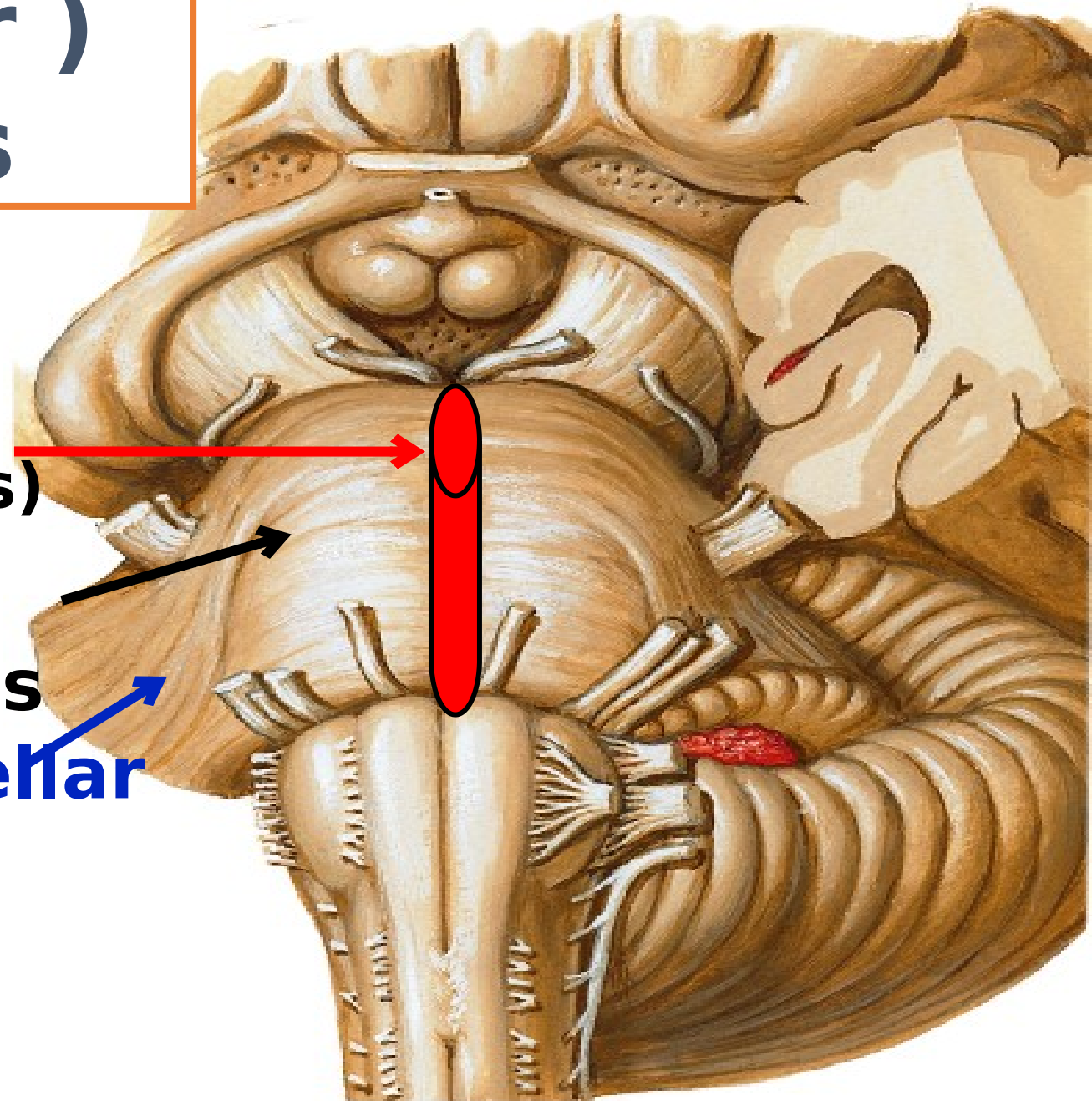
**Anterior  
surface**



**Posterior  
surface**

# Ventral (Anterior ) surface of Pons

- o Basilar Sulcus  
(Sulcus Basilaris)
- o ~~for~~ basilar  
artery
- o transverse  
pontine ridges
- o Middle cerebellar  
peduncle  
(MCP)

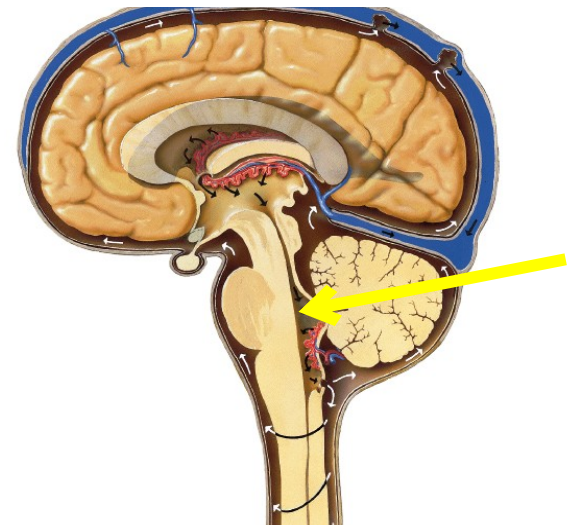
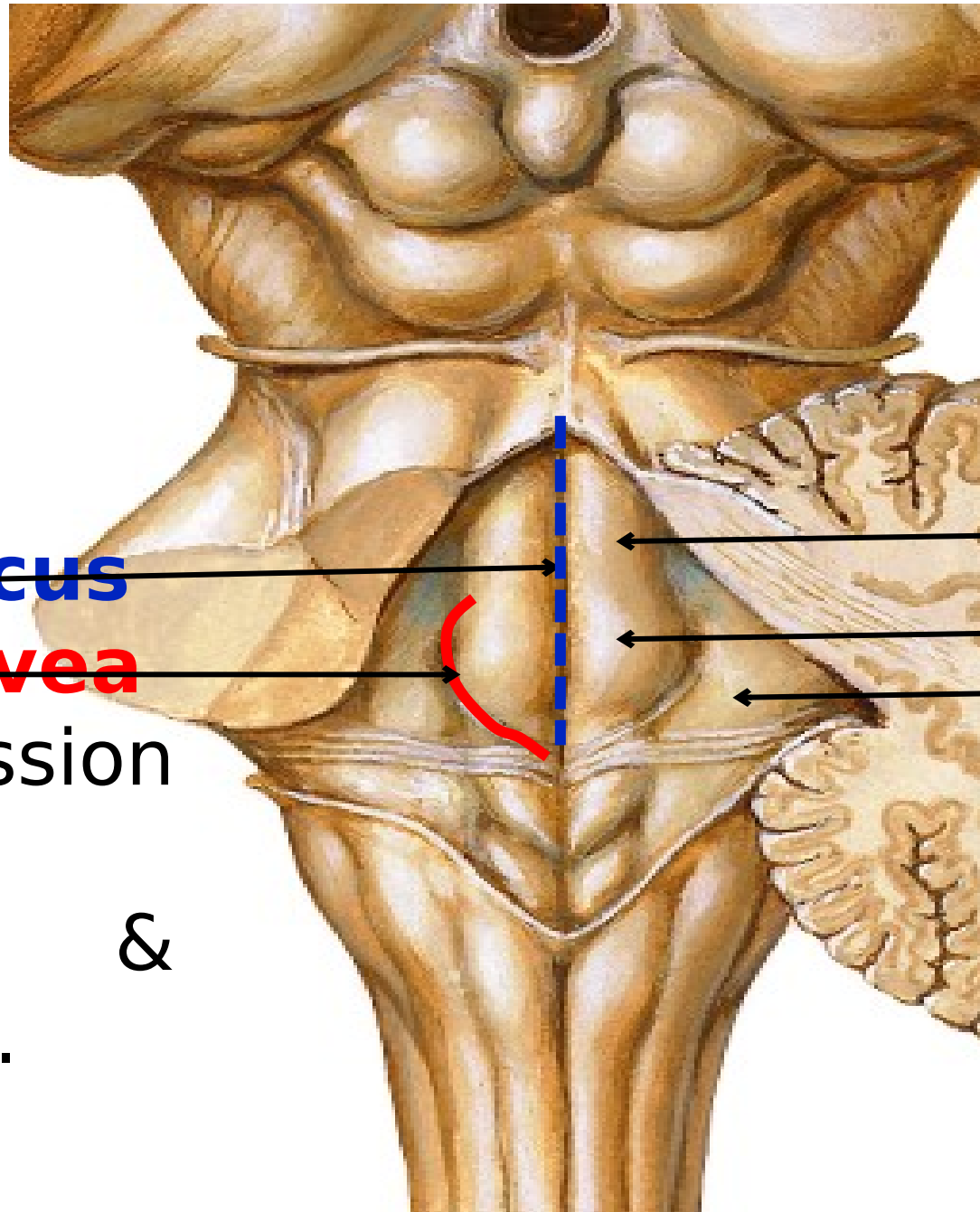


# Posterior Surface of PONS

□ **Median sulcus**

□ **Superior fovea**

It is a depression between facial colliculus & vestibular area.

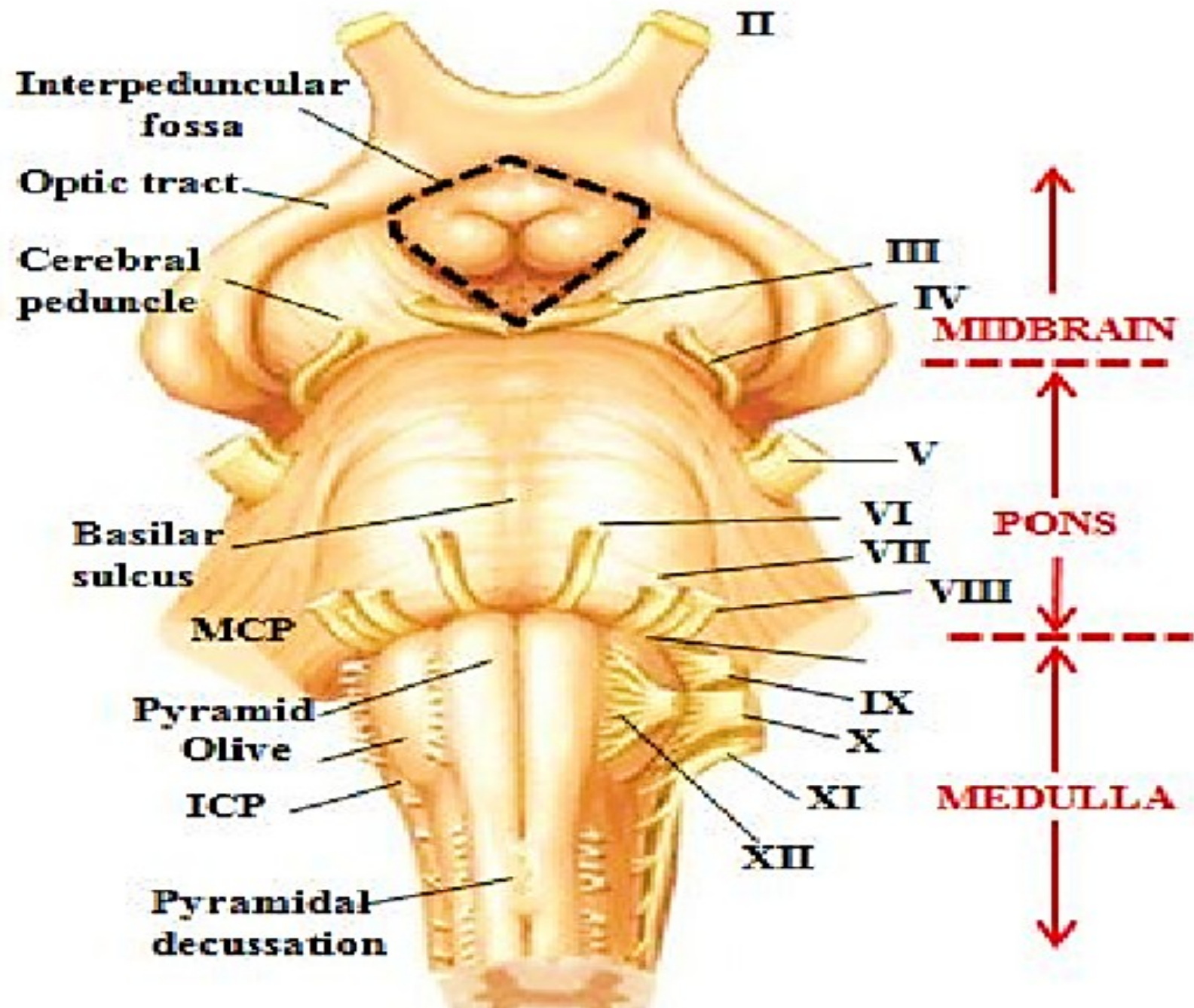


Medial eminence

Facial colliculus (

Vestibular ar



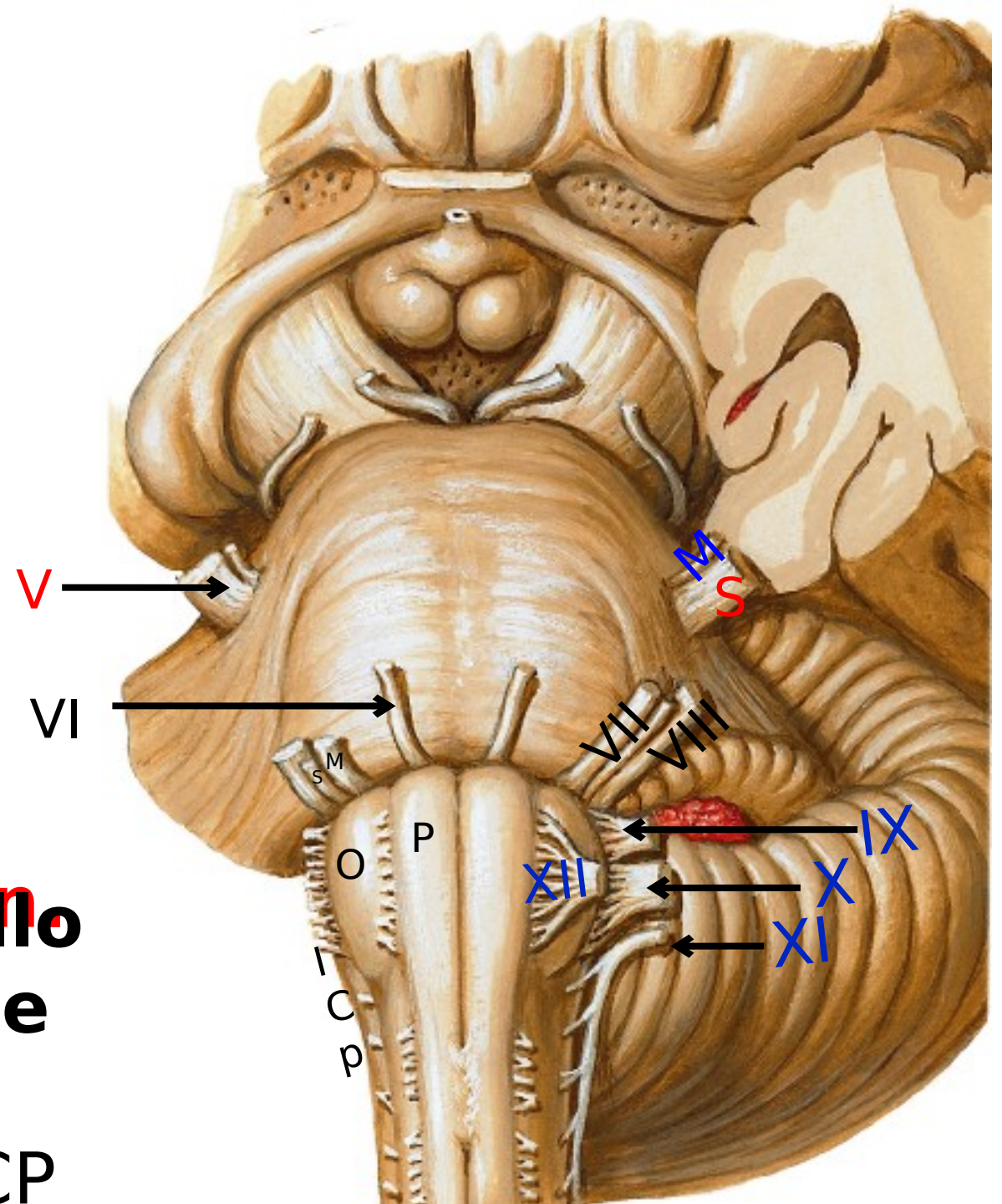


❑ **Trigeminal (5<sup>th</sup>) nerve**

❑ **Abducent (6<sup>th</sup>) nerve:**  
at the junction between  
**pyramid & pons.**

❑ **Facial (7<sup>th</sup>) nerves**  
❑ **Vestibulo-cochlear (8<sup>th</sup>) n.**

} at  
**cerebello-  
pontine  
angle**  
(bet. MCP





# CORTICO-PONTO- CEREBELLAR PATHWAY

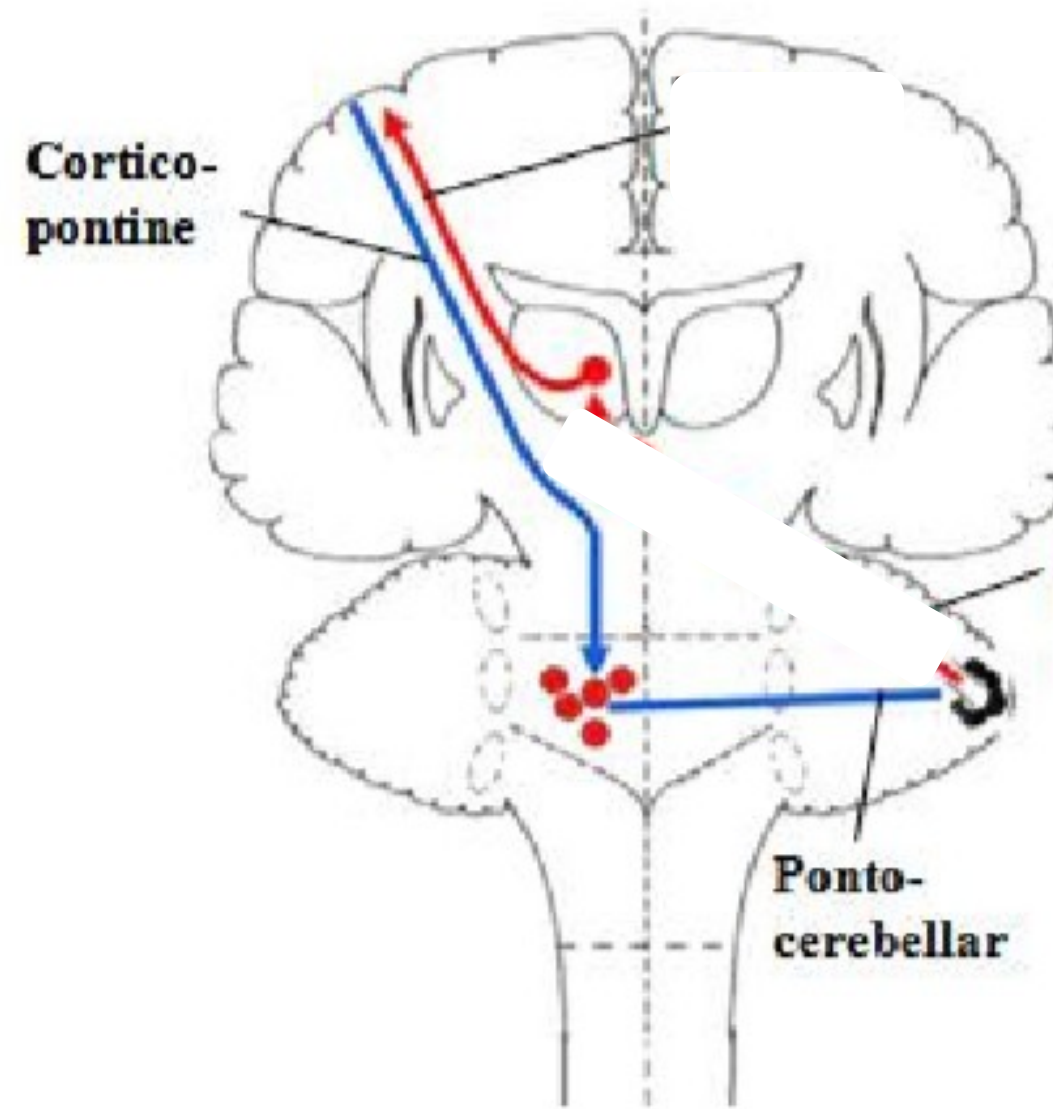
responsible for coordination of voluntary movements

## **1. Cortico-pontine fibers:**

arise from the 4 lobes of cerebral cortex (fronto, parieto, temporo & occipito-pontine fibers) descend in crus cerebri and end on the pontine nuclei.

## **2. Ponto-cerebellar fibers:**

the axons of the pontine nuclei form the transverse pontine fibers and pass via the MCP to contralateral cerebellum



# Caudal Pons (at the level of Facial Colliculus)

Tegmentum

Basis Pont

MCP

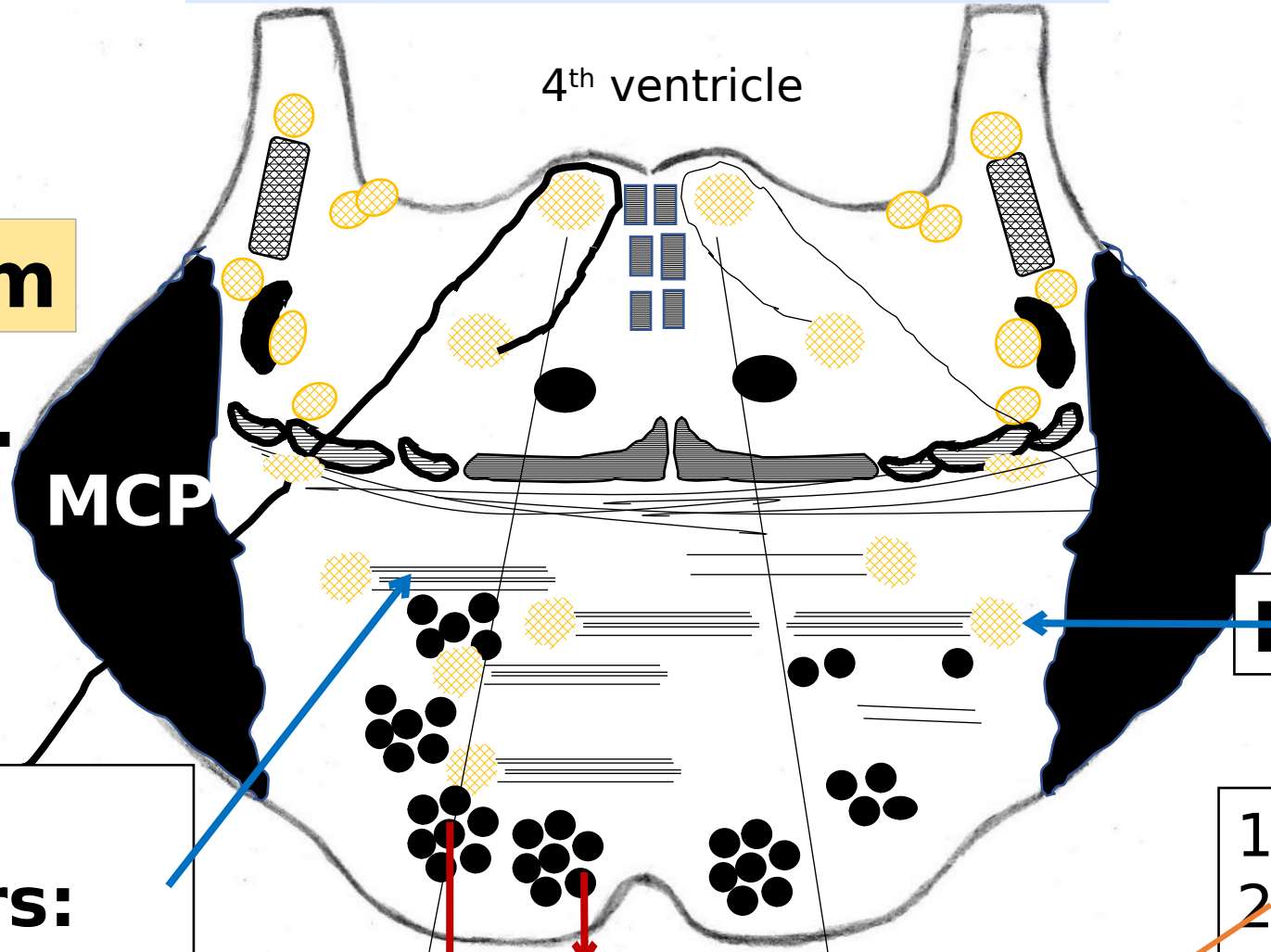
4<sup>th</sup> ventricle

Pontine nuclei

**Transverse pontine fibers:**  
are the axons of the pontine nuclei

**Descending pyramidal fiber**

1. Cortico-spinal
2. Cortico-nuclear
3. Cortico- pontine





# Caudal Pons (Facial Colliculus)

segmentu

Abducent  
n. nucleus

Facial n.  
nucleus

Vestibula  
r nuclei

Cochlear  
nuclei

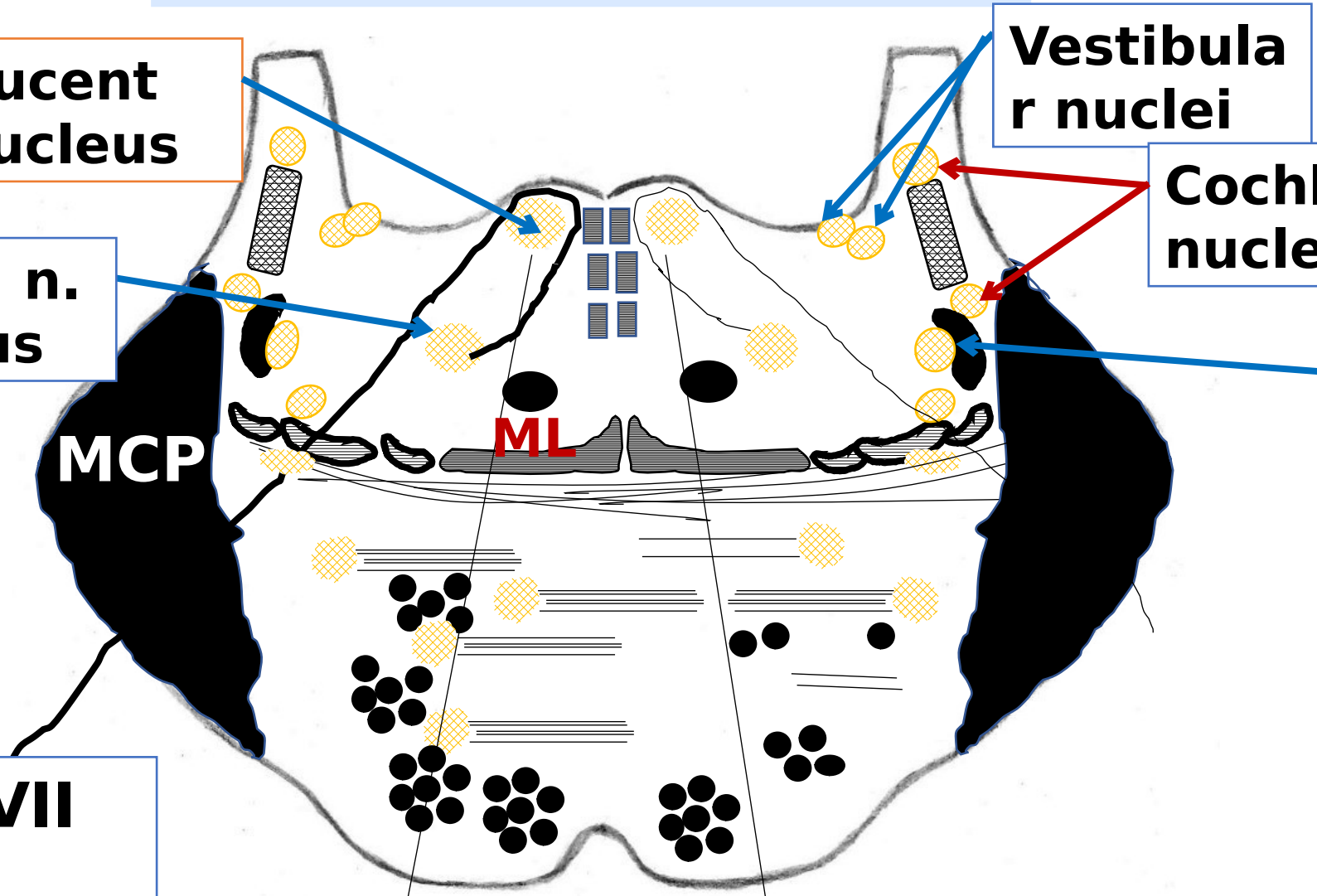
Trigemi  
nal n.  
V CN

MCP

ML

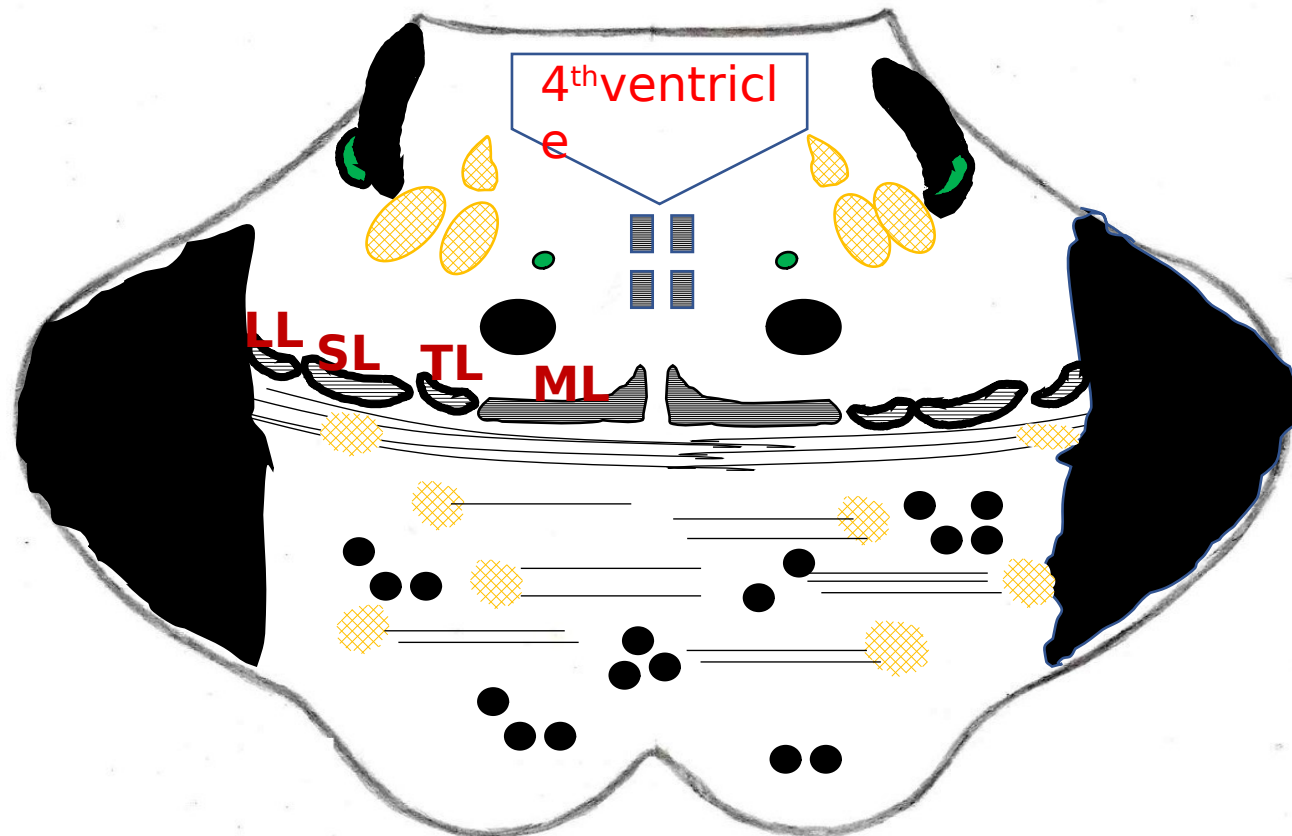
**Facial n.VII  
CN**  
(Provide motor  
innervation to facial  
muscles)

**Abducent VI CN**  
(Supply lateral rectus

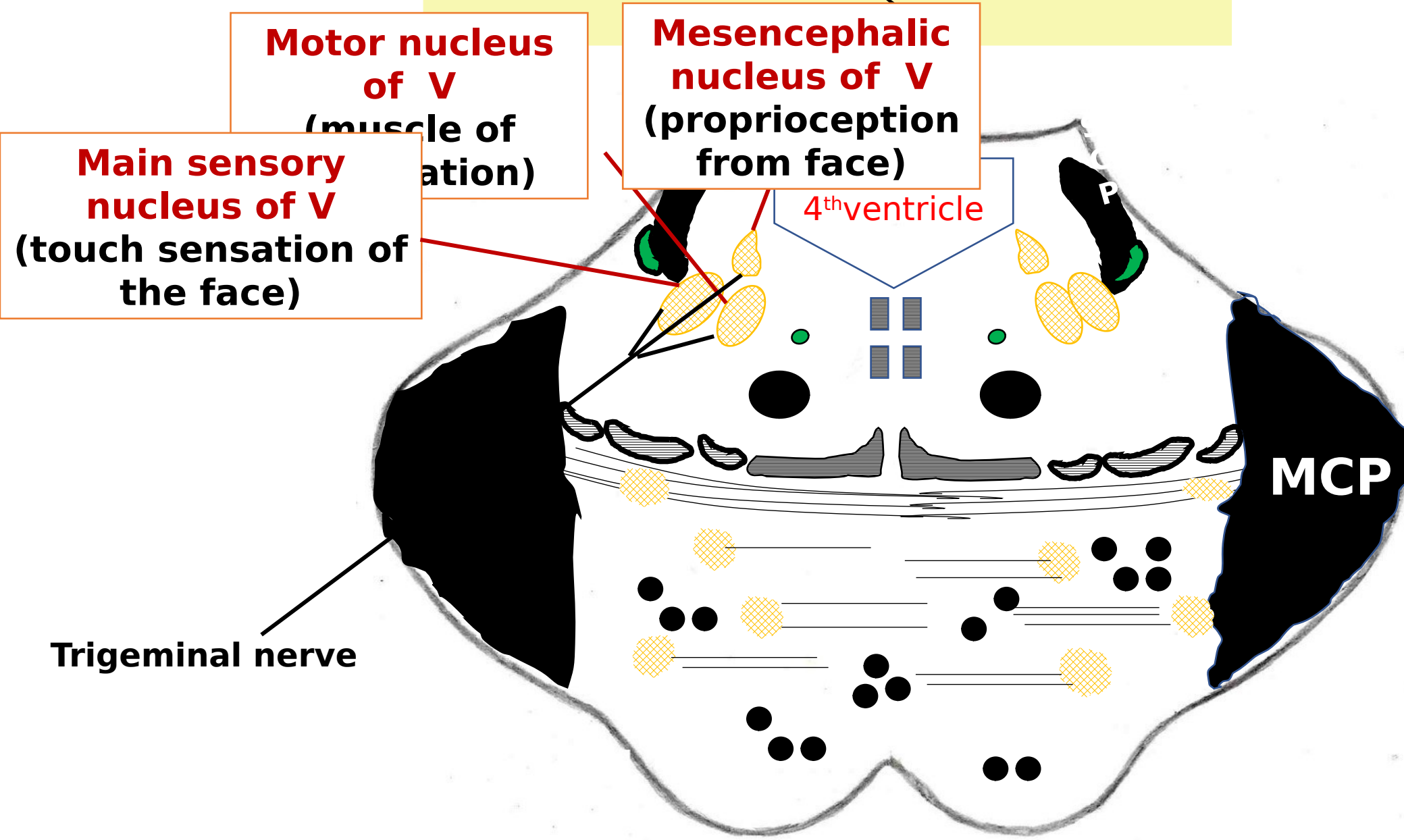


## Four lemnisci are

1. **Medial lemniscus** (carry conscious proprioception and fine touch from body)
2. **Trigeminal lemniscus** (carry pain & temperature and proprioception from face)
3. **Spinal lemniscus** (carry conscious proprioception and fine touch from body)
4. **Lateral lemniscus** (carry pain & temperature and proprioception from face)



# Cranial Pons (At the level of trigeminal)

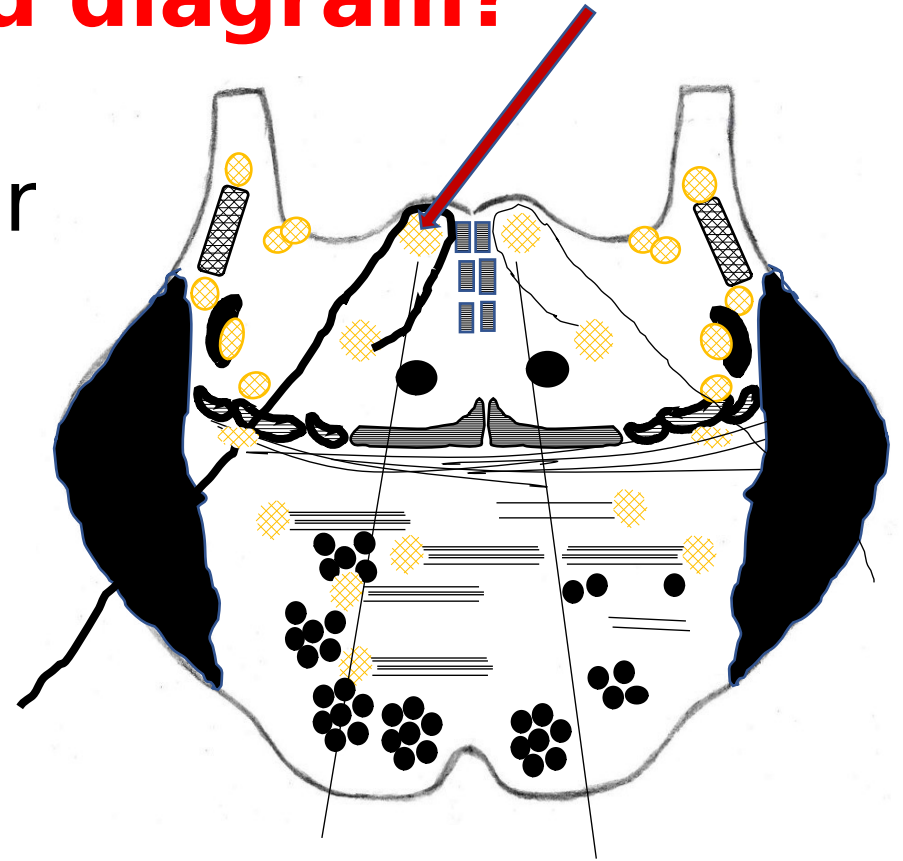


# Lecture Quiz



• Which of the following structure is indicated by the arrow in the provided diagram?

1. Spinal nucleus of trigeminal nerve
2. Abducent nucleus
3. Facial nucleus
4. Lateral vestibular nucleus
5. Dorsal cochlear nucleus



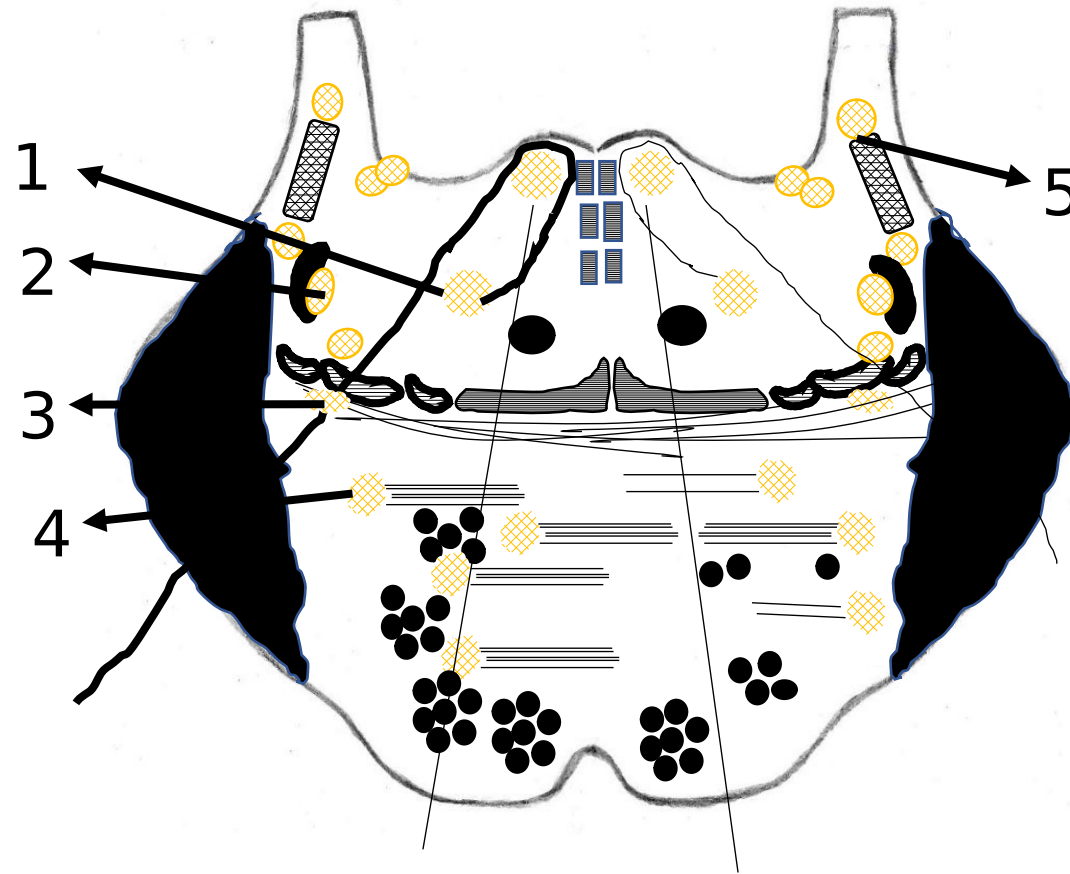


# Quiz



Neurological examination of a 50-year-old woman showed that she cannot wrinkle her forehead and cannot close her right eye. Which of the following is most likely the location of the lesion?

- a. 1
- b. 2
- c. 3
- d. 4
- e. 5

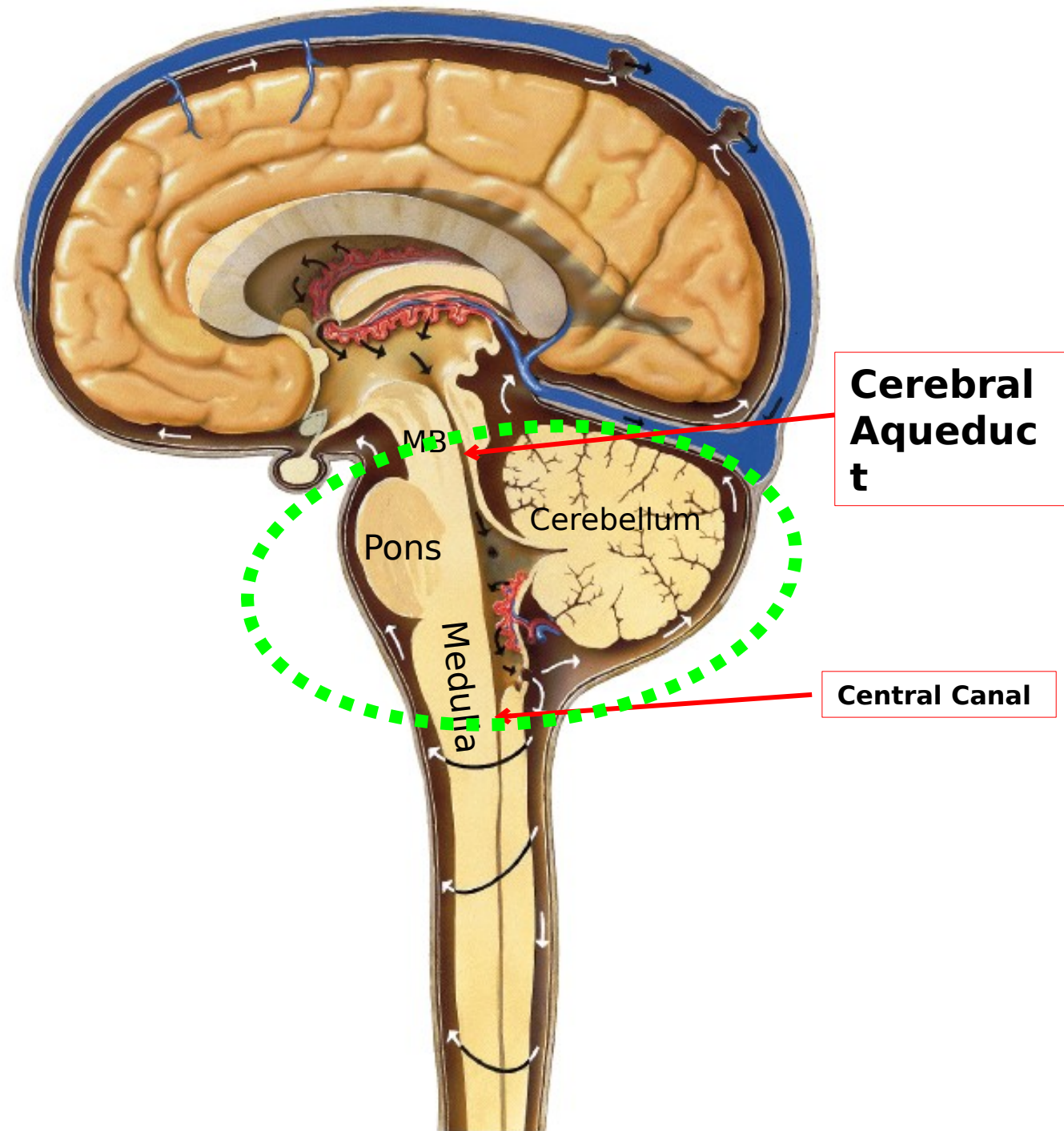


# Fourth Ventricle

the Hind brain

It lies between:  
pons & medulla  
in front  
& Cerebellum  
behind.

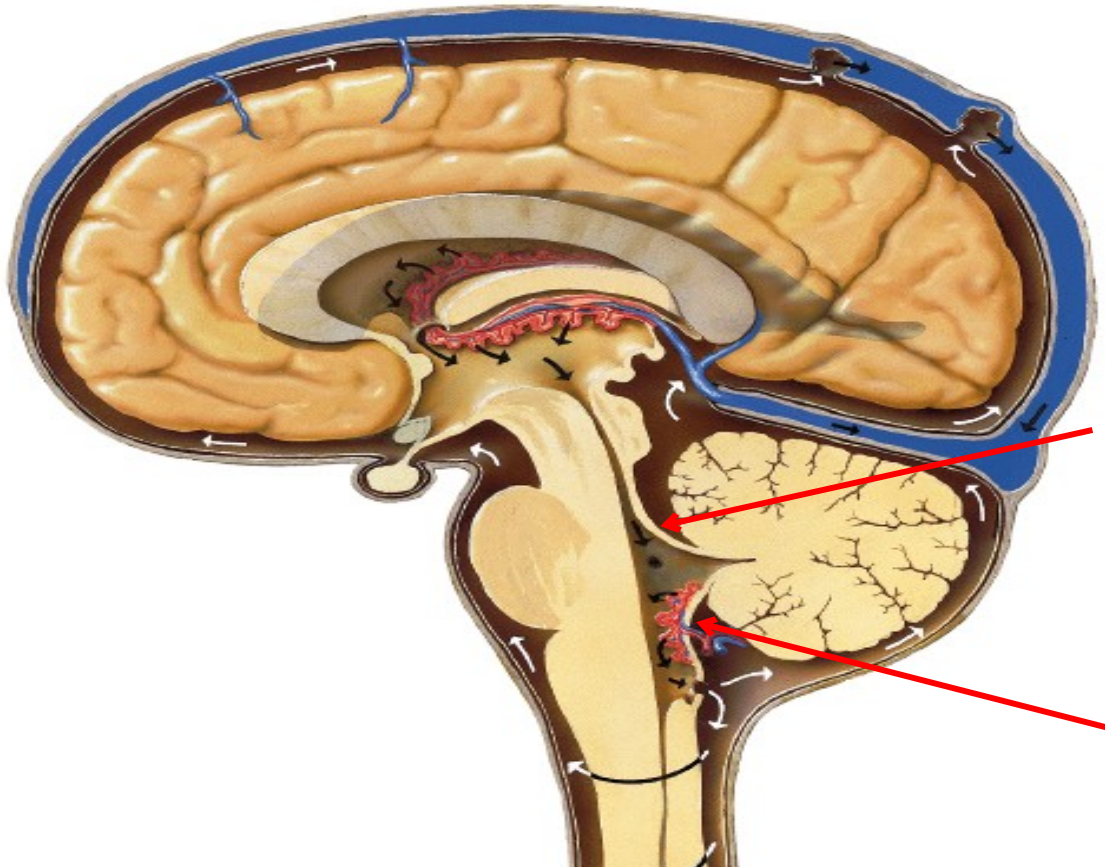
above with the  
cerebral  
aqueduct of MB  
and below with



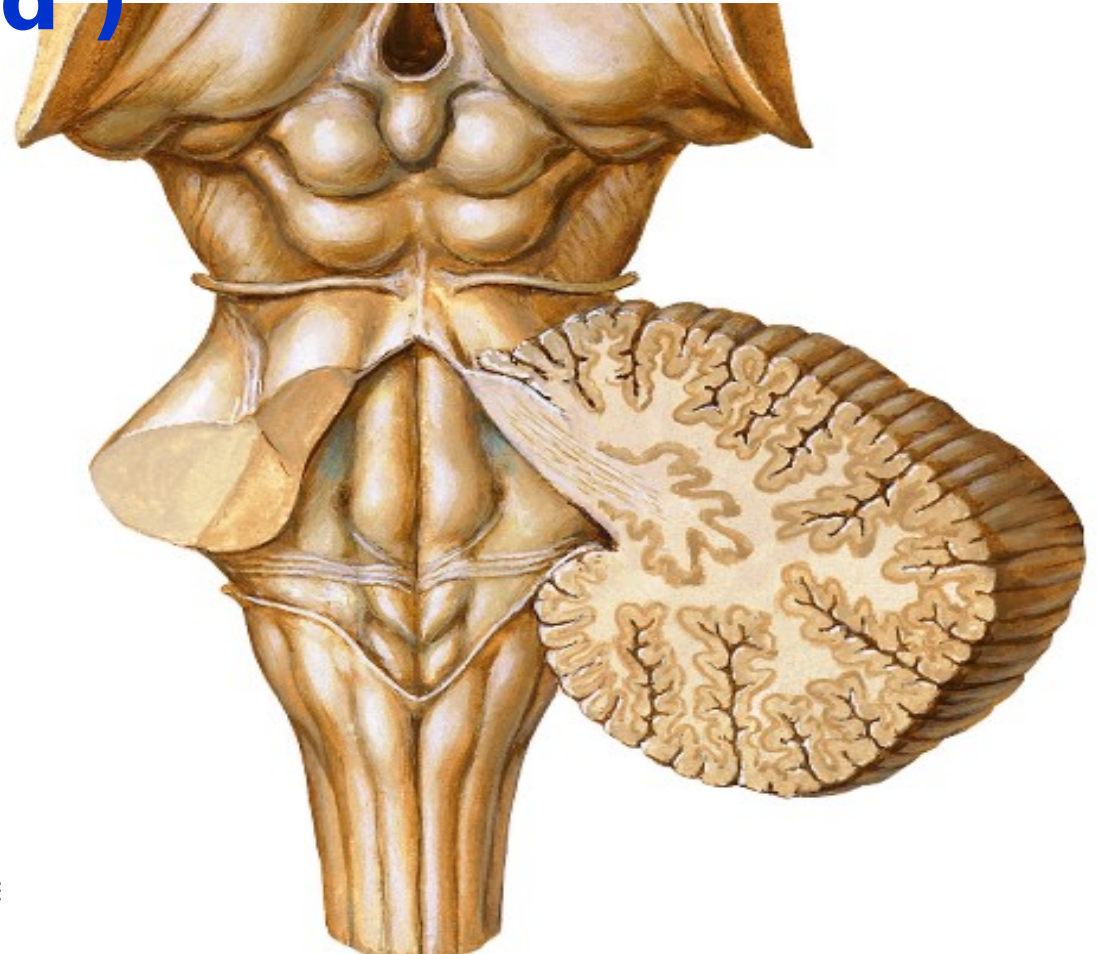
# Fourth Ventricle

of Superior Colliculus  
Medullary Vellum (Tent shaped )

**Floor:** Rhomboid Fossa



tomy Departme



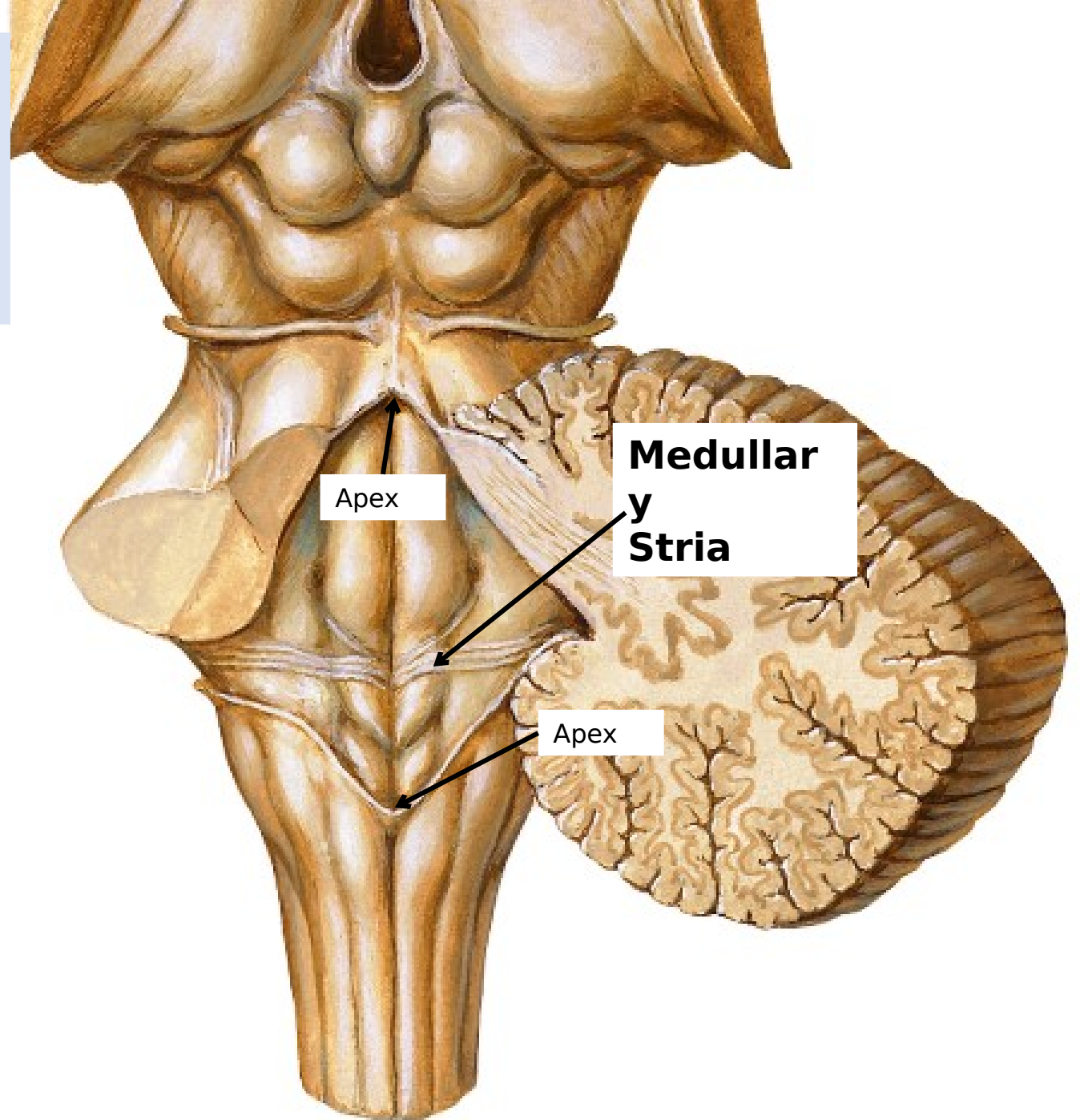


# Fourth Ventricle

Is **diamond** in shape (rhomboidal fossa).

Is divided into **2 triangles** by the **stria medullaris**:

- **upper**



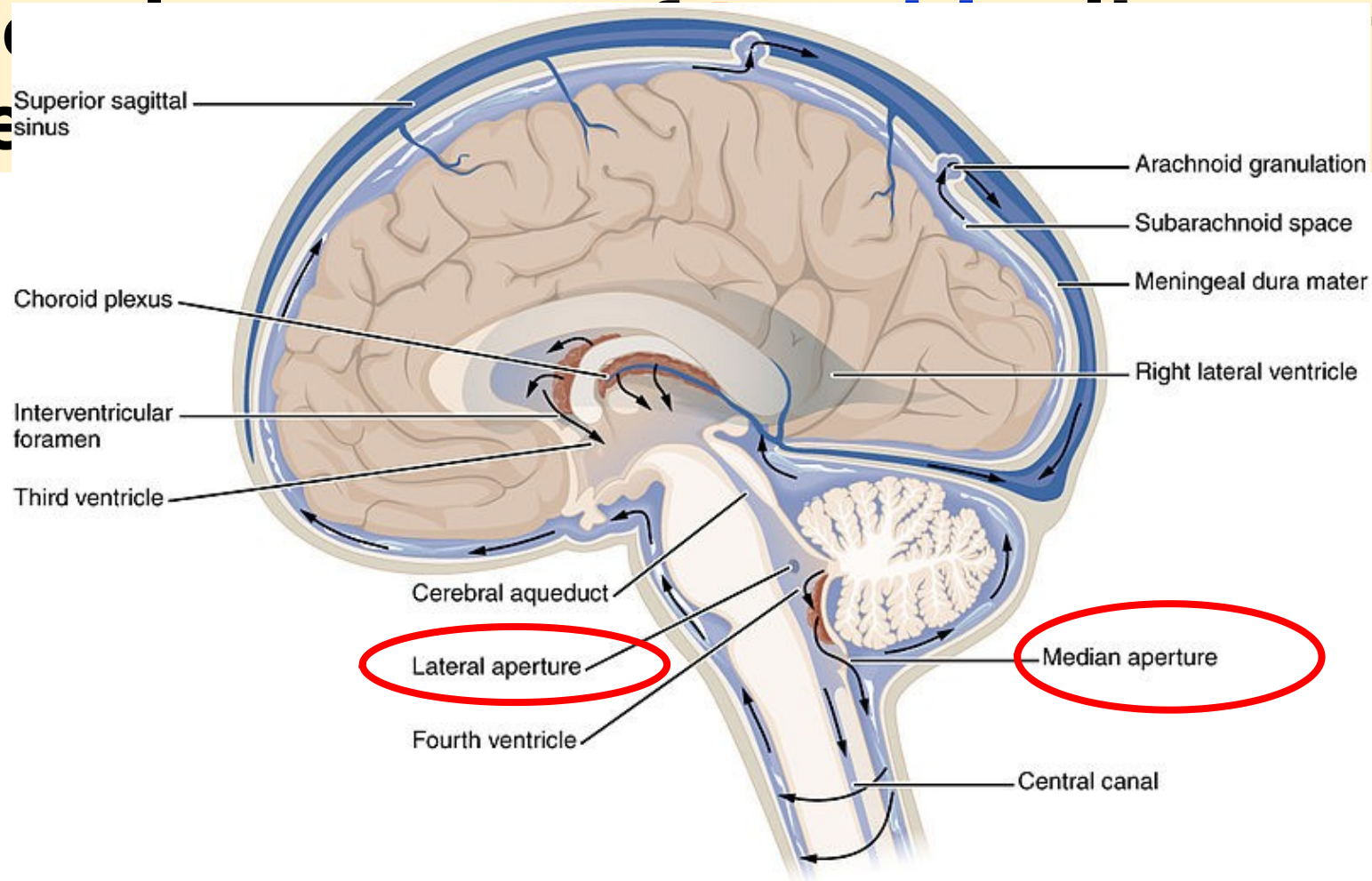


# Foram ina

**M**edian aperture of **M**agendie lies at the lower part of the roof.

**L**ateral  
**l**ateral

the



Thank you